Staff Cross Ex. 1

Introduction

Q. Please state your name and business address.

A. My name is Janis Freetly. My business address is 527 East Capitol Avenue, P.O. Box 19280, Springfield, Illinois 62794-9280.

Q. What is your current position with the Illinois Commerce Commission (ICC)?

A. I am currently employed as a Financial Analyst in the Finance Department of the Financial Analysis Division.

Q. Please describe your qualifications and background.

A. In May of 1995, I earned a Bachelor of Business degree in Marketing from Western Illinois University. I received a Master of Business Administration degree, with a concentration in Finance, from Western Illinois University in May of 1998. I have been employed by the ICC in my present position since September of 1998.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to present the overall cost of capital and to recommend a fair rate of return on rate base for Consumers Illinois Water Company (CIWC or the Company). I will also respond to the direct testimony of Mr. Henry G. Mulle.

Cost of Capital

Q. Please summarize your cost of capital findings.

A. The overall cost of capital for CIWC ranges from 9.30% to 9.80%, with a midpoint estimate of 9.55%, as shown on Schedule 3.12 .

Q. What is the overall cost of capital for a public utility?

A. The overall cost of capital is the sum of the component costs of the capital structure (i.e., debt, preferred stock, and common equity) after each is weighted by its proportion to total capital. It represents the rate of return the utility needs to earn on its assets to satisfy contractual obligations to, or the market requirements of, its investors.

Q. Why is it important to determine a reasonable cost of capital for a public utility?

A. A primary objective of regulation is to minimize the cost of reliable service to ratepayers while allowing public utilities to earn a fair and reasonable rate of return. When a public utility is authorized a rate of return on rate base equal to a reasonable cost of capital, the interests of ratepayers and investors are properly balanced. If the authorized rate of return is greater than a reasonable cost of capital, ratepayers are burdened with excessive rates. Conversely, if the authorized rate of return is less than a reasonable cost of capital, the utility may be unable to raise capital at a reasonable cost and ultimately may be unable to raise sufficient capital to meet demands for service. Therefore, the interests of ratepayers

and investors are best served when a utility's allowed rate of return is set equal to a reasonable overall cost of capital.

Capital Structure

Q. What capital structure did the Company propose for setting rates?

A. The Company proposes to use an average future test year for determining the return on rate base. The capital structure CIWC proposes is based on an average Year 2000 future test year, as shown on Schedule 3.01.

Q. What capital structure do you recommend?

A. I accept the Company's proposal to use an average Year 2000 future test year for determining the return on rate base. However, the short-term debt and common equity balances proposed by CIWC are incorrect. The balance of short-term debt should be reduced to reflect the unamortized issuance expense incurred by the Company. This reduction results in a carrying value of $1,469,410, which should be used as the average Year 2000 balance of short-term debt. The balance of common equity proposed by CIWC appears to be an error, as it does not reconcile with the balance reported in the Company's 1998 Annual Report.[1] Therefore, I propose using the $36,659,950 balance of common equity reported in the Company's 1998 Annual Report. My proposed capital structure is shown in Schedule 3.01.

[1] Company response to Staff Data Request FD-4.01; *1998 Annual Report of Water and/or Sewer Utilities* - Form 22 Illinois Commerce Commission, p. 5F.

Q. Is your proposed capital structure appropriate for determining CIWC's overall rate of return?

A. Since this proceeding will set rates for future service, the capital structure should reflect the best available estimates of its components for the period during which those rates will remain effective. The capital structure should reflect all known and measurable changes, including security issuances and retirements. My proposed average year 2000 capital structure appears reasonable since new tariffs will become effective during the year 2000. CIWC does not project any major changes to the components of the capital structure for the years ending December 31, 1999 and 2000.[2] The Company plans to fund all plant additions and operating expenses in 1999 and 2000, from its projected future cash flows during those years.[3] CIWC projects that earnings for the years ending December 31, 1999 and 2000 would be paid out in dividends, therefore the balance of common equity would not be affected.[4] The balance of long-term debt is adjusted to reflect the continual amortization of the debt expense, which is a known and measurable change. Since no substantial changes are anticipated to affect the capital structure, I accept the Company's proposal to use an average year 2000 capital structure, subject to the changes I propose.

Q. Does capital structure affect the overall cost of capital?

A. Yes. Financial theory suggests capital structure will affect the value of a firm and, therefore, its cost of capital, to the extent it affects the expected level of cash flows that

[2] CIWC Schedule H-2, page 8.
[3] CIWC Schedule H-2, page 8.
[4] CIWC Schedule H-2, page 8.

accrue to third parties (i.e., other than debt and stock holders). Employing debt as a source of capital reduces a company's income taxes,[5] thereby reducing the cost of capital. However, as reliance on debt as a source of capital increases, so does the probability of bankruptcy. As bankruptcy becomes more probable, expected payments to attorneys, trustees, accountants and other third parties increase. Simultaneously, the expected value of the income tax shield provided by debt financing declines. Beyond a certain point, a growing dependence on debt as a source of funds increases the overall cost of capital. Therefore, the Commission should not determine the overall rate of return from a utility's actual capital structure if it determines that capital structure adversely affects the overall cost of capital.

An optimal capital structure would minimize the cost associated with the capital a utility raises and maintain its financial integrity. Unfortunately, determining whether a capital structure is optimal remains problematic because (1) the cost of capital is a continuous function of the capital structure, rendering its precise measurement along each segment of the range of possible capital structures problematic; (2) the optimal capital structure is a function of operating risk, which is dynamic; and (3) the relative costs of the different types of capital vary with dynamic market conditions. Consequently, one should determine whether the capital structure is consistent with the financial strength necessary

[5] The tax advantage debt has over equity at the corporate level is partially offset at the individual investor level. Debt investors receive returns largely in the form of current income (i.e., interest). In contrast, equity investors receive returns in the form of both current income (i.e., dividends) and capital appreciation (i.e., capital gains). Taxes on capital gains are lower than taxes on interest and dividend income because capital gains tax rates are lower, and taxes on capital gains are deferred until realized.

to access the capital markets under all conditions, and if so, whether the cost of that financial strength is reasonable.

Therefore, I compared CIWC's average 2000 capital structure to industry standards. At the end of the third quarter of 1998, the weighted average common equity ratio for the seventeen water utilities on Standard & Poor's *Utility Compustat* equaled 41.14% with a standard deviation of 7.21%. Standard & Poor's categorizes debt securities on the basis of default risk. Although no formula exists for determining a debt rating, Standard & Poor's publishes the mean and median values of various financial ratios by debt rating. Water utilities with debt rated A have a mean total debt ratio of 55.76%.[6]

CIWC's common equity ratio is somewhat in excess of one standard deviation above the *Utility Compustat* average for a water utility. CIWC's total debt ratio is less than the mean value for water utilities with A-rated debt. The above suggests that CIWC's capital structure is commensurate with a somewhat above average degree of financial strength, which is unlikely to result in excessive capital costs. Therefore, I conclude CIWC's capital structure is reasonable for establishing rates.

Q. Please describe debt ratings.

[6] Standard & Poor's, *Global Utilities Rating Service: Financial Statistics Twelve Months Ended December 31, 1998*, June 1999, p. 14.

A. A debt rating measures the risk that a company will default on its interest or principal payment obligations and reflects both the operating and financial risks of a utility.[7]

Q. Does CIWC have a Standard & Poor's debt rating?

A. No. Standard & Poor's does not rate the debt of CIWC.[8]

Cost of Short-Term Debt

Q. What is the cost of short-term debt for CIWC?

A. CIWC issues short-term debt in the form of bank loans. The interest rate on those loans equals the thirty through 360-day London Interbank Offered Rate (LIBOR) plus 95 basis points.[9] As of August 6, 1999, the LIBOR rate ranged from 5.21% for one month to 5.92% for one year.[10] Adding 95 basis points to that range results in a cost of short-term debt between 6.16% and 6.87%. Therefore, the 6.75% used by the Company is a reasonable estimate of the cost of short-term debt. The Company's adjustment for issuance expenses results in a 7.15% cost of short-term debt. I accept the Company's 7.15% cost of short-term debt calculation.

[7] Standard & Poor's, *Global Utilities Rating Service: Financial Statistics Twelve Months Ended December 31, 1998*, June 1999, p. 1, Standard & Poor's, *Utilities Rating Service: Industry Commentary*, May 20, 1996, p.1.
[8] Standard & Poor's, *Utilities & Perspectives*, Vol. 4, No. 39, September 22, 1997, p. 12.
[9] CIWC Schedules D-2 and WP-D2.
[10] *The Wall Street Journal*, August 9, 1999, Money Rates, p. C21.

Cost of Long-Term Debt

Q. What is the embedded cost of long-term debt for CIWC?

A. The average 2000 embedded cost of long-term debt for CIWC is 8.71%, as derived on Company Schedule D-3, page 1.

Cost of Preferred Stock

Q. What is the embedded cost of preferred stock for CIWC?

A. CIWC's embedded cost of preferred stock for the average 2000 test year equals 5.52%, as derived on Company Schedule D-4.

Cost of Common Equity

Q. How did you measure the investor required rate of return on common equity for CIWC?

A. I measured the investor required rate of return on common equity for CIWC with the discounted cash flow (DCF) and risk premium models. DCF and risk premium models can not be applied directly to CIWC because its common stock is not market-traded. Therefore, I applied those models to two samples. The first sample consists of five public utilities that are comparable in risk to CIWC. The second sample comprises six water utilities.

Comparable Sample

Q. How did you select a sample of public utilities comparable in risk to CIWC?

A. According to financial theory, the market-required rate of return on common equity is a function of operating and financial risk. Thus, the method used to select a sample should reflect both the operating and financial characteristics of a firm. I selected a sample with eleven financial and operating ratios: (1) common equity; (2) cash flow to capitalization; (3) cash flow to debt; (4) fixed asset turnover; (5) free cash flow to capitalization; (6) funds flow interest coverage; (7) gross utility additions to net plant; (8) net cash flow to gross utility additions; (9) operating profit margin; (10) earnings stability; and (11) operating income stability. The last two were measured with the coefficient of determination of a least-squares regression of the natural logarithm of their respective quarterly data against time.[11] The stability ratios were measured over the period 1993-1997. Data from the period 1995-1997 were averaged to normalize the remaining ratios.

I began with all market-traded electric, natural gas, and water companies on Standard & Poor's *Utility Compustat* tape. Among those utilities, 158 had sufficient data to calculate the financial and operating ratios. Next, I conducted a principal components analysis of the financial and operating ratios. Principal components constitute linear combinations of optimally-weighted variables which are uncorrelated with one another.[12,13] For each

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[11] Dummy variables were added to the regression model to incorporate seasonality.

[12] A principal component can be described mathematically as follows:

$$c_i = b_{i1} \times x_1 + b_{i2} \times x_2 + \ldots + b_{in} \times x_n$$

where c_i ≡ the utility's score on principal component i;
b_{in} ≡ the weight for ratio x_n to create component c_i; and
x_n ≡ the utility's value on variable n

utility in the data base, the principal components analysis calculates values for each component, known as principal components scores, which have a mean of zero and a standard deviation of one. From the principal components analysis, I retained four components for risk analysis. After calculating the scores for each principal component I rank-ordered the 158 firms in terms of least relative distance from CIWC. Distance was measured by calculating the difference between each principal component score for each firm and CIWC, summing the squared differences, and taking the square root of the summation. Since Standard & Poor's *Utility Compustat* has not yet been updated through 1998, the results of the analysis are the same as those presented by Staff in CIWC's last rate case for the Candlewick Sewer Division in Docket No. 98-0632. Of those companies, York Water Company was eliminated from the sample because it lacked data necessary to conduct a DCF analysis. In addition, I eliminated Aquarion Company from the sample due to its pending merger with Yorkshire Water. Schedule 3.02 presents the four principal component scores and the cumulative distance for the remaining five public utilities utilities that are the least distance from, and therefore the most comparable to, CIWC.

Q. How did you select a sample of water utilities?

A. The water utility sample comprises all market-traded water utilities that are not involved in any large, pending mergers and for which analyst growth rate forecasts are available. The six companies comprising that sample are also presented on Schedule 3.02 along

[13] The variables are optimally weighted when the resulting principal components explain the maximum amount of variance in the data base.

with their principal component scores which were obtained from the analysis described above. Two of the water utilities, E'Town Corp. and United Water Resources, Inc. are also in the comparable sample.

Q. Do the samples include any incremental risk or increased cost of capital which is the direct or indirect result of the public utility's affiliation with unregulated or nonutility companies?

A. No. The operating and financial ratios from which the sample was constructed reflect only CIWC operations, not the operations of any corporate affiliates.

DCF Analysis

Q. Please describe DCF analysis.

A. DCF analysis is a market-based approach for establishing a security's value. This value reflects all relevant risks the market associates with the security. DCF analysis establishes a cost of common equity capital directly from investors' rate of return requirements.

According to DCF theory, a security price equals the present value of the cash flow investors expect it to generate. Specifically, the market value of common stock equals the cumulative value of the expected stream of future dividends after each is discounted by the investor required rate of return.

Q. Please describe the DCF model with which you measured the investor required rate of return on common equity.

A. As it applies to common stocks, DCF analysis is generally employed to determine appropriate stock prices given a specified discount rate. Since a DCF model incorporates time-sensitive valuation factors, it must correctly reflect the timing of the dividend payments that stock prices embody. Incorporating stock prices that the financial market sets on the basis of quarterly dividend payments into a model that ignores the time value of quarterly cash flows constitutes a misapplication of DCF analysis.

The companies in the two samples pay dividends quarterly. Therefore, I applied a constant-growth DCF model that measures the annual required rate of return on common equity as follows:

$$k = \frac{\sum_{q=1}^{4} D_{0,q}(1+g)(1+k)^{1-[x+0.25(q-1)]}}{P} + g.$$

That model assumes dividends will grow at a constant rate, and the market value of common stock (i.e., stock price) equals the sum of the discounted value of each dividend. Schedule 3.03 describes the derivation of the model.

Q. How did you estimate the growth rate parameter?

A. Determining the market-required rate of return with the DCF methodology requires a growth rate that reflects the expectations of investors. Although the current market price

reflects aggregate investor expectations, market-consensus expected growth rates cannot be measured directly. Therefore, I measured market-consensus expected growth indirectly with growth rates forecasted by securities analysts that are disseminated to investors.

I examined analysts' projected earnings growth rates in the July 15, 1999 edition of Institutional Brokers Estimate System (IBES) and data provided by Zacks Investment Research (Zacks) as of August 4, 1999. IBES and Zacks summarize and publish the earnings growth expectations of financial analysts employed by the research departments of investment brokerage firms. Both provide forward-looking estimates of expected earnings growth. Schedule 3.04 presents the analyst growth rate estimates for the companies in the comparable sample and the water utility sample. The companies in both samples are shown as one group to simplify data presentation.

Q. How were these growth rates incorporated into your DCF analysis?

A. Since market-consensus expected growth is unobservable, any DCF estimate of the investor required rate of return includes an unknown degree of measurement error. To reflect that uncertainty, I grouped growth rate estimates based on the lower and higher observed mean growth rate of each company which ultimately leads to a range for the cost of common equity. The growth rate ranges for the companies in the two samples are presented in Schedule 3.04.

Q. How did you measure the stock price?

A. For each company in the two samples, I measured its current stock price with its closing market price from August 6, 1999. Those stock prices are presented in Schedule 3.05. A current stock price reflects all information that is available and relevant to the market; thus, it represents the investors' assessment of the common stock's current value.

Since stock prices reflect the market's expectation of the cash flows the securities will produce and the rate at which those cash flows are discounted, an observed change in the market price does not necessarily indicate the required rate of return on common equity has changed. Rather, price changes may simply reflect investors' re-evaluation of the expected dividend growth rate. In addition, stock prices change with the approach of dividend payment dates. Consequently, when estimating the required return on common equity with the DCF model, analysts should measure the expected dividend yield and the corresponding expected growth rate concurrently. Using a historical stock price along with current growth expectations or combining an updated stock price with past growth expectations will likely produce an inaccurate estimate of the market-required rate of return on common equity.

Q. Please explain the significance of the column titled "Next Dividend Payment Date" shown on Schedule 3.05.

A. Estimating year-end dividend values requires measuring the length of time between each dividend payment date and the first anniversary of the stock observation date. For the first dividend payment, that length of time is measured from the "Next Dividend Payment Date." Subsequent dividend payments occur in quarterly intervals.

Q. How did you estimate the next four expected quarterly dividends?

A. Most utilities declare and pay the same dividend per share for four consecutive quarters before adjusting the rate. Therefore, I assumed the dividend rate will adjust during the same quarter it changed during the preceding year. If the utility did not change its dividend during the last year, I assumed the rate would change during the next quarter. The lower and higher expected growth rates were applied to the current dividend rate to estimate the expected dividend rate. Schedule 3.05 presents the current quarterly dividends. Schedule 3.06 presents the expected quarterly dividends.

Q. Based on your DCF analysis, what is the estimated required rate of return on common equity for the comparable sample and the water utility sample?

A. The DCF analysis estimates of the required rate of return on common equity ranges from 9.55% to 9.90% for the comparable sample and 8.12% to 8.59% for the water utility sample as shown on Schedule 3.07. Those estimates are derived from the growth rates from Schedule 3.04, the stock price and dividend payment dates from Schedule 3.05, and the expected quarterly dividends from Schedule 3.06.

Risk Premium Analysis

Q. Please describe the risk premium model.

A. The risk premium model is based on the theory that the market-required rate of return for a given security equals the risk-free rate of return plus a risk premium associated with that

security. A risk premium represents the additional return investors expect in exchange for assuming the risk inherent in an investment. Mathematically, a risk premium equals the difference between the expected rate of return on a risk factor and the risk-free rate. If the risk of a security is measured relative to a portfolio, then multiplying that relative measure of risk and the portfolio's risk premium produces a security-specific risk premium for that risk factor.

The risk premium methodology is consistent with the theory that investors are risk-averse. That is, investors require higher returns to accept greater exposure to risk. Thus, if investors had an opportunity to purchase one of two securities with equal expected returns, they would purchase the security with less risk. Conversely, if investors had an opportunity to purchase one of two securities with equal risk, they would purchase the security with the higher expected return. In equilibrium, two securities with equal quantities of risk have equal required rates of return.

The Capital Asset Pricing Model (CAPM) is a one-factor risk premium model that mathematically depicts the relationship between risk and return as:

$$R_j = R_f + \beta_j \times (R_m - R_f)$$

where R_j ≡ the required rate of return for security j;

R_f ≡ the risk-free rate;

R_m ≡ the expected rate of return for the market portfolio; and

β_j ≡ the measure of market risk for security j.

In the CAPM, the risk factor is market risk which is defined as risk that cannot be eliminated through portfolio diversification. To implement the CAPM, one must estimate the risk-free rate of return, the expected rate of return on the market portfolio and a security or portfolio-specific measure of market risk.

Q. How did you measure market risk on a security-specific basis?

A. Beta is widely recognized by the financial community as a measure of risk in a portfolio context. When multiplied by the market risk premium, a security's beta produces a market risk premium specific to that security.

The beta for a security or portfolio of securities is estimated with the following model using an ordinary least-squares technique:

$$R_{j,t} - R_{f,t} = \alpha_j + \beta_j \times (R_{m,t} - R_{f,t}) + \varepsilon_{j,t}$$

where $R_{j,t}$ ≡ the return on security j in period t;

$R_{f,t}$ ≡ the risk-free rate of return in period t;

$R_{m,t}$ ≡ the return on the market portfolio in period t;

α_j ≡ the intercept term for security j;

β_j ≡ beta, the measure of market risk for security j; and

$\varepsilon_{j,t}$ ≡ the residual term in period t for security j.

A beta can be calculated for firms with market-traded common stock. I calculated a beta for the comparable sample and water utility sample in three steps. First, I subtracted the U.S. Treasury bill yield from the average percentage change in company stock prices and

the percentage change in the Standard & Poor's Composite Index (S&PCI) to estimate each portfolio's return in excess of the risk-free rate. Second, the excess returns of each sample were regressed against the excess returns of the S&PCI to estimate a raw beta. The regression analysis employs sixty monthly observations of stock return and U.S. Treasury bill yield data. Third, I adjusted the raw beta estimate through the following equation:

$$\beta_{adjusted} = 0.33743 + 0.66257 \times \beta_{raw}.$$

That adjustment is based upon the theory that betas regress towards the market mean value of 1.0 over time and represents an attempt to estimate a forward-looking beta.

Q. What are the beta estimates for the samples?

A. The adjusted beta for the comparable sample, estimated over sixty months ending July 1999, equals 0.49. For the water utility sample, the adjusted beta equals 0.53, estimated over sixty months ending July 1999.

Q. How did you estimate the risk-free rate of return?

A. I examined two potential estimates of the risk-free rate of return: the interest rate implied by the prices of U.S. Treasury bill futures contracts, as traded on the International Monetary Market; and the interest rate implied by the prices of U.S. Treasury bond futures contracts, as traded on the Chicago Board of Trade. The interest rates implicit in

U.S. Treasury bill and Treasury bond futures contract prices represent market assessments of the interest rates on the underlying securities during future periods.

Q. Why did you examine the yields on U.S. Treasury bills and bonds as measures of the risk-free rate?

A. The proxy for the nominal risk-free rate should contain no risk premium and reflect similar inflation and real risk-free rate expectations to the security being analyzed through the risk premium methodology.[14] The yields of fixed income securities include premiums for default and interest rate risk. Default risk pertains to the possibility of default on principal or interest payments. Securities of the United States Treasury are virtually free of default risk by virtue of the federal government's fiscal and monetary authority. Interest rate risk pertains to the effect of unexpected interest rate fluctuations on the value of securities.

Since common equity theoretically has an infinite life, its market-required rate of return reflects the inflation and real risk-free rates anticipated to prevail over the long run. U.S. Treasury bonds, the longest term treasury securities, are issued with terms to maturity of thirty years; U.S. Treasury notes are issued with terms to maturity ranging from two to ten years; U.S. Treasury bills are issued with terms to maturity ranging from ninety-one days to one year. Therefore, U.S. Treasury bonds are more likely to incorporate within their yields the inflation and real risk-free rate expectations that drive, in part, the prices of common stocks than either U.S. Treasury notes or Treasury bills.

Although U.S. Treasury bond yields are more likely to incorporate the inflation and real risk-free rate expectations embodied in the returns demanded from common stock, U.S. Treasury bill yields contain a smaller premium for interest rate risk. Due to relatively long terms to maturity, U.S. Treasury bond yields contain an interest rate risk premium that diminishes their usefulness as measures of the risk-free rate. Thus, in terms of interest rate risk, U.S. Treasury bill yields more accurately measure the risk-free rate.

Q. How did you determine which yield is a better estimate of the long-term risk-free rate?

A. Although expectations for short and long-term real risk-free rates and inflation should equal over time, in finite time periods, short and long-term expectations may differ. Short-term interest rates tend to be more volatile than long-term interest rates.[15] Consequently, over time U.S. Treasury bill yields are less biased (i.e., more accurate) but less reliable (i.e., more volatile) estimators of the long-term risk-free rate than U.S. Treasury bond yields. In comparison, U.S. Treasury bond yields are more biased (i.e., less accurate) but more reliable (i.e., less volatile) estimators of the long-term risk-free rate. Therefore, an estimator of the long-term nominal risk-free rate should not be chosen mechanistically. Rather, the similarity in current short and long-term nominal risk-free rates should be evaluated. If those risk-free rates are similar, then U.S. Treasury bill yields should be used to measure the long-term nominal risk-free rate. If not, some other proxy or combination of proxies should be found.

[14] Real risk-free rate and inflation expectations comprise the non-risk related portion of a security's rate of

Q. Which U.S. Treasury bill and bond futures contracts did you examine?

A. I examined those contracts that designate delivery nearest an anticipated March 2000 order date. The closing prices of the U.S. Treasury bill futures contracts traded at the International Monetary Market for delivery in December 1999 imply an interest rate of 5.29%. The closing prices of the U.S. Treasury bond futures contracts traded at the Chicago Board of Trade for delivery in March 2000 imply an interest rate 6.66%. Both estimates are derived from closing quotes for August 6, 1999. Schedule 3.08 presents the quotes and implied yields.

Q. Of the U.S. Treasury bill and bond yields, which is currently a better proxy for the long term risk-free rate?

A. In terms of the gross domestic product (GDP) price index, WEFA forecasts the inflation rate will average 2.1% annually during the 1999-2018 period.[16] The Federal Reserve Bank of Philadelphia forecasts the CPI inflation rate will average 2.4% during the 1999-2008 period.[17] In terms of real GDP growth, WEFA forecasts the real risk-free rate will average 2.3% during the 1999-2018 period.[18] The Federal Reserve Bank of Philadelphia forecasts real GDP growth will average 2.6% during the 1999-2008 period.[19] Those forecasts imply a long-term, nominal risk-free rate between 4.4% and 5.1%.[20] Therefore,

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return.

[15] Fabozzi and Pollack, ed., *The Handbook of Fixed Income Securities*, Fourth Edition, Irwin, p. 789.
[16] WEFA Group, *U.S. Long-Term Economic Outlook*, vol. 1, Second Quarter 1999, pp. 4.4-4.5.
[17] Federal Reserve Bank of Philadelphia, *Survey of Porfessional Forecasters*, February 22, 1999.
[18] WEFA Group, *U.S. Long-Term Economic Outlook*, vol. 1, Second Quarter 1999, pp. 1.8 - 1.9.
[19] Federal Reserve Bank of Philadelphia, *Survey of Porfessional Forecasters*, February 22, 1999.
[20] Nominal interest rates are calculated as follows:

to the extent inflation and real GDP growth expectations coincide with WEFA and Federal Reserve forecasts, both the U.S. Treasury bill and U.S. Treasury bond yields appear to currently overstate the long-term risk-free rate. Historically, the premium for interest rate risk in U.S. Treasury bond yields has averaged 1.4% which implies a long-term risk-free rate of 5.1%.[21] The historical interest rate risk premium suggests the long-term risk-free rate is approximately equal to the yield on U.S. Treasury bills. Therefore, on the basis of the implied nominal long-term risk-free rate forecasts, I conclude that the U.S. Treasury bill yield is a superior proxy for the long-term risk-free rate currently.

Q. How was the expected rate of return on the market portfolio estimated?

A. The expected rate of return on the market was estimated by conducting a DCF analysis on the firms composing the Standard & Poor's Composite Index. That analysis uses dividends and closing market prices as of June 30, 1999 as reported in the July 1999 edition of Standard & Poor's *Security Owner's Stock Guide*. Growth rate estimates were obtained from the June 17, 1999 edition of *IBES Monthly Summary Data* and July 28, 1999 Zacks reports. Firms not paying a dividend as of June 30, 1999, or for which neither IBES nor Zacks growth rates were available were eliminated from the analysis. The resulting company-specific estimates of the expected rate of return on common equity were then weighted using relative market value data from Salomon Brothers,

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$$r = (1 + R) \times (1 + i) - 1.$$

where r ≡ nominal interest rate;
R ≡ real interest rate; and
i ≡ inflation rate.

[21] Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation 1999 Yearbook*, p. 164.

Performance and Weights of the S&P500: Second Quarter 1999. The estimated weighted average expected rate of return for the remaining 413 firms, composing 82.87% of the market capitalization of the S&PCI, equals 15.00%.

Q. What is the risk premium estimate of the required rates of return on common equity for the comparable sample and the water utility sample?

A. The risk premium model indicates that the required rate of return on common equity is 10.05% for the comparable sample and 10.44% for the water utility sample. These estimates result from measuring the risk-free rate with U.S. Treasury bill yields. The computation of those estimates is shown on Schedule 3.09.

Recommendation

Q. Based on your analysis, what is your estimate of the required rate of return on common equity of CIWC?

A. A thorough analysis of the required rate of return on common equity requires both the application of financial models and the analyst's informed judgment. An estimate of the required rate of return on common equity based solely on judgment is inappropriate. Nevertheless, because techniques to measure the required rate of return on common equity necessarily employ proxies for investor expectations, judgment remains necessary to evaluate the results of such analyses. Along with DCF and risk premium analyses, I have considered the observable 7.85% and 8.12% rates of return the market currently

requires on less risky A-rated and Baa-rated utility long-term debt, respectively.[22] Based on my analysis, in my judgment, the investor required rate of return for CIWC's common equity ranges from 10.00% to 11.00%.

Q. Please summarize how you formed the range for the investor required rate of return on CIWC's common equity.

A. The models from which the individual company estimates were derived are correctly specified and thus contain no source of bias. Moreover, I am unaware of bias in any of my proxies for investor expectations.[23] Consequently, estimates for a sample as a whole are subject to less measurement error than individual company estimates. Nevertheless, a comparison of the individual company DCF estimates to the current 7.85% yield on long-term A-rated utility bonds suggests that some of those estimates are probably too low. Therefore, I eliminated the DCF estimates for E'Town Corporation from the comparable sample because the estimated rate of return was less than that bond yield. In addition, I did not include the DCF results for the water utility sample because the estimated rates of return for most of the companies in the sample were below the 7.85% yield on long-term A-rated utility bonds. As shown on Schedule 3.10, the resulting DCF-derived estimates of the investor required rate of return on common equity ranges from 10.07% to 10.50% for the comparable sample. Further, I did not incorporate the CAPM estimate of the investor required rate of return on common equity for the water utility sample into my

[22] Moody's Investors Service, *Moody's Long-Term Corporate Bond Yield Averages*, August 4, 1998, www.moodys.com/economics.nsf/web/econindyd?OpenDocument.

[23] Except as discussed above in regard to U.S. Treasury bond yields as proxies for the long-term risk-free rate.

recommended range because relying on only one model to estimate the cost of equity for a sample is improper and could lead to questionable results. Therefore, my recommendation is based on the DCF and CAPM estimates of the investor required rate of return on common equity for the comparable sample only. Next, I formed a range for the sample by: 1) averaging the DCF-derived estimates of the required rate of return on common equity, or 10.29%, and rounding to the nearest tenth of a percent, or 10.30%; 2) taking the risk premium-derived estimate of the required rate of return on common equity, or 10.05%, and rounding to the nearest tenth of a percent, or 10.10%; 3) expanding the tight range by subtracting forty basis points from the low end of the range and adding forty basis points to the high end of the range; and 4) adding thirty basis points to reflect the greater operating risk to which CIWC is exposed in comparison to that of the two samples.

Q. Please describe how you determined that CIWC is exposed to greater operating risk than the two samples.

A. As Schedule 3.02 shows, the first two factor scores for CIWC and the two samples are similar in magnitude. Yet, the third factor score for CIWC is somewhat higher than the two samples while the fourth factor score is appreciably lower. The third and fourth factors measure operating risk in the form of capital intensity and earnings stability, respectively. Relatively high capital intensity scores, while often resulting in higher profit margins, as is the case for CIWC, also might result in lower earnings stability, as CIWC's relatively low score on the fourth factor shows. As earnings stability declines, operating risk should increase.

Q. Did you obtain any more recent financial data on the companies in the two samples?

A. Yes. To ensure that the relative risk of the samples in comparison to CIWC has not changed, I computed the common equity ratio, expenditures to net utility plant, fixed asset turnover, and earnings stability, for all of the companies in both samples. These ratios are representative of the risk factors shown on Schedule 3.02. The common equity ratio is a measure of financial risk, as is Factor 1. The expenditures to net utility plant ratio and Factor 2 display construction risk. The fixed asset turnover ratio is a measure of asset concentration or capital intensity, as is Factor 3. Earnings stability is incorporated into Factor 4. The 1998 ratios are presented in Schedule 3.11. With this analysis, I conclude that excepting construction risk, the relative risk of the samples has not changed; CIWC remains more capital intensive than the comparable sample and its earnings continue to be less stable than the companies that comprise both samples.

Q. Please describe how you determined that thirty basis points was an appropriate risk premium for CIWC's greater degree of operating risk.

A. Unfortunately, no direct method exists for measuring the risk premium associated with CIWC's greater degree of operating risk. Therefore, I examined current long-term bond yield spreads. Except for Hawaiian Electric Industries, whose debt is rated BBB by Standard & Poor's, all the companies in the two samples have an A category debt rating.[24] In contrast, CIWC appears to have the equivalent of Standard & Poor's BBB debt rating

[24] Standard & Poor's, *Global Utilities Rating Service: Financial Statictics Twelve Months Ended December 31, 1998*, June 1999.

due to its greater degree of operating risk.[25] Consequently, I added the current, approximately thirty basis point spread between long-term A and BBB-rated utility debt yields to the cost of common equity estimates for the comparable sample to reflect CIWC's higher level of operating risk.

Q. Should the investor required rate of return on common equity be adjusted for issuance costs?

A. No, the Company did not provide sufficient evidence to support an adjustment for issuance costs. In response to Staff data request FD-2.01, CIWC stated that the determination of common equity issuance expenses on Company Schedule D-5 is based on the fact that no allowance was made in rate orders issued by the Commission. In the Order in Docket No. 91-0193, the Commission found that the lack of a reference to recovery of issuance costs in past orders is not sufficient evidence to support an adjustment for issuance costs incurred.[26]

Further, the Company's common equity issuance costs from the two most recent issuances of common stock are too small to warrant an adjustment to its cost of common equity. In 1998, the Company incurred $4,000 in expenses to issue common stock.[27] The

[25] CIWC is not currently rated by Standard & Poor's, but the ratios used by S&P's indicate that CIWC would be below the A-rating category, or BBB.
[26] Docket No. 91-0193, Order, March 18, 1992, p. 106.
[27] CIWC Schedule D-5.

Company incurred $5,536 in expenses to issue common stock in 1995.[28] The $9,536 in costs associated with those two common stock issues remain unrecovered.

The common equity issuance cost adjustment is calculated using the following formula:

$$Issuance\ Cost\ Adjustment = \frac{ROE \times Unrecovered\ Issuance\ Costs}{Common\ Equity\ Balance}$$

where $ROE \equiv$ the investor required rate of return on common equity.

Using CIWC's average 2000 balance of common equity of $36,659,950 and an investor required rate of return on common equity equal to the low-end of my recommended range, or 10.00%, the common equity issuance cost adjustment equals 0.00%. At an investor required rate of return on common equity equal to the high-end of my recommended range, or 11.00%, the common equity issuance cost adjustment also equals 0.00%. Therefore, no adjustment to CIWC's cost of common equity for issuance costs is warranted at this time.

Overall Cost of Capital

Q. What is the overall cost of capital for CIWC in this proceeding?

A. As shown on Schedule 3.12, the overall cost of capital for CIWC ranges from 9.30% to 9.80% with a midpoint estimate of 9.55%. The midpoint estimate is based on a cost of common equity of 10.50%.

[28] CIWC Schedule D-5.

Q. Mr. Mulle suggests that an interest coverage test be applied to the rate of return on common equity recommendation.[29] Have you performed a similar calculation?

A. Yes. At an allowed rate of return on common equity equal to the midpoint of my recommended range, i.e., 10.50%, the "opportunity" pre-tax interest coverage ratio for CIWC equals 3.01 times. In comparison, the mean pre-tax interest coverage ratio for Standard & Poor's A-rated water utilities equals 2.87 times, with a standard deviation of 0.56.[30] Hence, CIWC's "opportunity" pre-tax interest coverage ratio is above, but within one standard deviation of, the mean pre-tax interest coverage ratio for Standard & Poor's A-rated water utilities.

Response to Mr. Mulle

Q. Please summarize your evaluation of Mr. Mulle's analysis of CIWC's cost of common equity.

A. Mr. Mulle's analysis contains several errors that result in his over-estimation of the cost of common equity for CIWC. Critical errors occur in the comparable earnings, DCF, risk premium, and CAPM analyses. Many of the errors result from Mr. Mulle's misinterpretation of financial theory and statistical analysis, as will be discussed below. The large number of errors that permeate Mr. Mulle's analysis makes commenting on

[29] CIWC Exhibit 4.0, p. 51.
[30] Standard & Poor's, *Global Utilities Rating Service: Utility Financial Statistics 12 Months Ended December 31, 1998*, June 1999, p. 14.

them all infeasible. Therefore, absence of a comment on any particular aspect of Mr. Mulle's analysis should not be interpreted that I find it reasonable.

Size-Based Risk Premium

Q. Is Mr. Mulle's adjustment for a size-based risk premium appropriate?

A. No. Mr. Mulle's size-based risk premium has no theoretical basis. Rather, it is based on an empirical study that is not applicable to CIWC. Regardless, should a size-based risk premium be adopted, it should be based on the size of CIWC's new parent company, Philadelphia Suburban Corporation (PSC).[31]

Q. Why should the parent company be the basis for a size adjustment?

A. Although CIWC raises its own debt and preferred stock, it obtains common equity financing from its new parent company, PSC. The merging of PSC and Consumers Water Company created the second largest water company in the United States based on market capitalization. Therefore, the merger should enhance the ability of PSC and CIWC to access the market on reasonable terms. If the risk inherent in a utility common stock is a function of that utility's size, then the increase in the size of CIWC's parent company should have decreased its cost of common equity. If a risk premium were based on the size of CIWC, rate payers would be denied the benefits associated with the combined entity's stronger financial profile.

[31] PSC and Consumers Water Company completed their merger in March of 1999.

Q. Please explain the significance of the absence of a theoretical basis for a size-based risk premium.

A. Since a size-based risk premium has no theoretical basis, to the extent that a correlation between firm size and return exists, that relationship is likely the result of some other factor or factors that are related to both size and return, such as liquidity or information costs. Relatively illiquid securities impose costs on the investor since he or she may be unable to sell them at a fair price on a timely basis. Gathering information regarding the expected cash flows and risks of a security imposes costs that an investor must recover through the returns that the security generates. The securities of smaller companies tend to be less liquid than those of larger companies since the potential breadth of the market for the former is usually more limited. Similarly, if fewer sources of information regarding smaller companies exist, then obtaining information might be more expensive.

If the securities of PSC are less liquid or the availability of information regarding PSC is more restricted than the average security, then adding a size-based premium to a risk premium or CAPM analysis of CIWC's cost of common equity might be proper. The study reported in Ibbotson Associates, which forms the basis of Mr. Mulle's size-based risk premium adjustment, is not restricted to utilities. Rather, it is based on the stocks listed on the New York Stock Exchange.[32] Yet, utilities, unlike most stocks listed on the New York Stock Exchange, are subject to uniform reporting requirements. Moreover, their rates and conditions of service are publicly reported. Therefore, the cost of obtaining information regarding smaller utilities in general, and PSC in particular, is

unlikely to be as high as that of unregulated companies that are similar in size. That was confirmed in a study which found no size premium for utilities.[33]

Even for non-utilities, evidence of the existence of a size-based risk premium is not very strong. Ibbotson Associates' data shows that out of a 1926-1997 study period, small stocks consistently out-performed large stocks only during the 1962-1978 period.[34] Frenholz found that a statistical property he termed the "crossover effect" was the primary cause of the difference between large and small company stock returns. The "crossover effect" measures the effect on rate of return of those stocks that switch from one size portfolio to another.[35] Fernholz states that as random price changes affect the size of stocks, some stocks cross over from one size portfolio to another. When a stock that starts in the large stock portfolio experiences a random negative price change that moves it into the small stock portfolio, its resulting negative return is assigned to, and therefore reduces, the return on the large stock portfolio. Conversely, when that same stock experiences a random positive price change that moves it back into the large stock portfolio, its resulting positive return is assigned to, and therefore increases, the return on the small stock portfolio.[36] The combination of portfolio construction and random (i.e., non-systematic) price movements creates a biased source of measurement error. Thus, the "crossover effect" may be less a market return phenomenon than a modeling problem. That is, the "small stock effect" may be nothing more than a statistical anomaly.

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[32] Ibbotson Associates, *SBBI 1998 Yearbook*, pp. 129-145.

[33] Wong, "Utility Stocks and the Size Effect: an Empirical Analysis," *Journal of the Midwest Finance Association*, 1993, pp. 95-101.

[34] Ibbotson Associates, *SBBI 1998 Yearbook*, pp. 102-103.

[35] Fernholz, "Crossovers, Dividends, and the Size Effect," *Financial Analysts Journal*, May/June1998, pp. 73-75.

In another study of domestic stocks listed on the NYSE and AMEX, Jensen, Johnson and Mercer, (hereinafter "Jensen") found that small stock premiums appear to be related to monetary policy. Specifically, changes in monetary policy play a prominent role in determining the magnitude of small stock premiums. During expansive monetary periods, defined as months following a reduction in the Federal Reserve discount rate, Jensen found that small stock returns were significantly greater than large stock returns. Conversely, during restrictive monetary periods, defined as months following an increase in the discount rate, Jensen found that small stock returns were not significantly greater than large stock returns.[37] Nevertheless, the applicability of the Jensen results to small utility stocks is doubtful. First, since the Jensen study was based on largely non-utility companies, their findings that small stocks outperformed large stocks during "expansionary" monetary periods is not surprising. During monetary expansions, as the supply of loanable funds increases, investors are more likely to invest in speculative, small company stocks. However, during monetary contractions, as the supply of loanable funds decreases, investors are more likely to switch from speculative investments to safer ones – the well-known "flight to quality." It is counter-intuitive to claim that investors would consider the smaller firms in the regulated utility sector to be speculative investments. Moreover, Jensen did not control their measurement of the small stock

[36] Fernholz, "Crossovers, Dividends, and the Size Effect," *Financial Analysts Journal*, May/June1998, p. 73.

[37] Jensen, Johnson, and Mercer, "The Inconsistency of Small-Firm and Value Stock Premiums," *Journal of Portfolio Management*, p. 35.

609 premium for risk as measured by beta or other means.[38] Therefore, their study does not
610 support Mr. Mulle's size-based risk premium adjustment.

611 Even if a size-based risk premium exists, Mr. Mulle's estimates of the size of the
612 premium are questionable. First, Mr. Mulle's size-based risk premiums are based on
613 historical returns, which implies that historical risk premiums are appropriate estimates
614 for expected risk premiums. Realized returns possess several deficiencies in that regard.
615 The returns an investment generates are unlikely to have equaled investor return
616 requirements due to unpredictable economic, industry-related, or company-specific
617 events. Even if an investment's return equaled investor requirements in a given period,
618 both the price of, and the investment's sensitivity to, each source of risk changes over
619 time. Consequently, the past relationship between two investments, such as small and
620 large company common stock, is unlikely to remain constant. Finally, the magnitude of
621 the historical risk premium depends upon the measurement period.

622 Second, as noted previously, Mr. Mulle's historical size-based risk premium is based on
623 the realized returns of the stocks listed on the New York Stock Exchange.[39] That implies
624 that small utility stocks are similar to small industrial stocks, a very questionable premise
625 that Mr. Mulle did not verify. Ibbotson Associates issued a similar warning against
626 applying its results outside stocks listed on the New York Stock Exchange.[40]

[38] Jensen, Johnson, and Mercer, "The Inconsistency of Small-Firm and Value Stock Premiums," *Journal of Portfolio Management*, pp. 30 and 34.
[39] Ibbotson Associates, *SBBI 1998 Yearbook*, pp. 129-145.
[40] Ibbotson Associates, *SBBI 1998 Yearbook*, p. 139.

Third, two principals of Ibbotson Associates, Roger Ibbotson and Paul Kaplan along with James Peterson (hereinafter "Ibbotson"), have asserted that biases in beta estimates for small companies are largely due to a lag in the amount of time that it takes some information to be incorporated into the prices of less frequently traded stocks.[41] Ibbotson found that incorporating that lag into beta estimates for small companies partially explains the "size effect" in common stock returns.[42] Therefore, before one bases an adjustment of the cost of common equity for "small" utilities on studies of predominantly industrial NYSE stocks, one should first investigate whether the Ibbotson lag-factor is present in the stock returns of small utilities.

Q. Did you perform such an analysis?

A. Yes. I calculated the traditional and lag betas for both of my samples and Mr. Mulle's water utility sample from the following model using an ordinary least-squares technique:[43]

$$R_{j,t} - R_{f,t} = \alpha_j + \beta_j \times (R_{m,t} - R_{f,t}) + \beta_{lag,j} \times (R_{m,t-1} - R_{f,t-1}) + \varepsilon_{j,t}$$

where $R_{j,t}$ ≡ the return on security j in period t;

$R_{f,t}$ ≡ the risk-free rate of return in period t;

$R_{m,t}$ ≡ the return on the market portfolio in period t;

[41] Ibbotson, Kaplan and Peterson, "Estimates of Small-Stock Betas Are Much Too Low," *Journal of Portfolio Management*, Summer 1997, pp. 105 and 110.

[42] Ibbotson, Kaplan and Peterson, "Estimates of Small-Stock Betas Are Much Too Low," *Journal of Portfolio Management*, Summer 1997, p. 105.

[43] Ibbotson, Kaplan and Peterson, "Estimates of Small-Stock Betas Are Much Too Low," *Journal of Portfolio Management*, Summer 1997, p. 106.

644 α_j ≡ the intercept term for security j;

645 β_j ≡ traditional beta for security j;

646 $\beta_{lag,j}$ ≡ lagged beta for security j; and

647 $\varepsilon_{j,t}$ ≡ the residual term in period t for security j.

648 The above equation is similar to that used to estimate "traditional" betas except that a
649 term for the "lagged" beta, (i.e., $\beta_{lag,j} \times (R_{m,t-1} - R_{f,t-1})$) is added. The lagged betas
650 equaled –0.08 and –0.14 for my comparable sample and water utility sample,
651 respectively. For Mr. Mulle's water utility sample, the lagged beta equaled -0.06.[44] In all
652 cases, the lagged betas were not statistically different from zero. That is, Ibbotson's size-
653 based lag-factor does not appear to be present in the stock returns of the utilities in my
654 comparable sample or water utility sample or Mr. Mulle's water utility sample.

655 Finally, Mr. Mulle's application of the Ibbotson Associates' historical size-based risk
656 premiums are probably inconsistent with the manner in which Ibbotson Associates
657 measured them. While Mr. Mulle adds the historical size premium to his CAPM-based
658 risk premium analysis which is based on adjusted Value Line betas, the studies I have
659 reviewed on the effect of size on returns employ raw betas.[45] Since the Ibbotson
660 Associates size-based risk premiums are a function of raw beta, Mr. Mulle should have
661 used the same type of betas as Ibbotson Associates.

[44] The adjusted beta for Mr. Mulle's sample equals 0.49; the adjusted sum beta (i.e., the sum of the adjusted beta and the adjusted lag beta) equals 0.45.

[45] Wong, "Utility Stocks and the Size Effect: an Empirical Analysis," *Journal of the Midwest Finance Association*, 1993, p. 96; Ibbotson, Kaplan and Peterson, "Estimates of Small-Stock Betas Are Much Too Low," *Journal of Portfolio Management*, Summer 1997, p. 106.

Q. Mr. Mulle also adds one-half his size-based risk premium to his market DCF analysis.[46] Is that appropriate?

A. No. Additional risk premiums are never added to DCF-based cost of common equity estimates for market and financial risks since those risks are already reflected in the stock price parameter of DCF analysis. The alleged existence of a size-based risk premium stems from a belief that stock price movements are related to firm size. If the size-based risk premium exists, it would be reflected in the stock price parameter of DCF analysis. Therefore, no adjustment to the DCF analysis for the size effect would be necessary. Conversely, if the DCF-derived estimates of the cost of common equity did not reflect a risk premium associated with firm size, it could only be due to an absence of such a premium in stock prices. If stock prices did not reflect a size premium, then Ibbotson Associates and other researchers never would have detected a phenomenon in stock returns that resembles a size premium.

Q. If the alleged size-based risk premium is already reflected in stock prices, why might it be appropriate to add it to a CAPM-based analysis?

A. The alleged existence of a size-based risk premium stems from a supposed failure of the risk component of the CAPM, beta, to adequately explain the returns of smaller companies.[47] According to portfolio theory, unexpected variation in market returns (i.e., market risk) is the only source of risk that is priced. Therefore, beta reflects only that portion of stock return variation that can be attributed to variation in the returns of the

[46] CIWC Exhibit 4.0, Schedule 7, p. 2.

market portfolio as a whole. The alleged existence of a size-based risk premium implies that small company stocks exhibit return variation that investors consider relevant in valuing common stocks but that market-wide common stock return variation cannot explain.

Q. Mr. Mulle also added a size-based risk premium to his risk premium analysis.[48] Is that appropriate?

A. Mr. Mulle's risk premium analysis uses beta to determine the risk premium. Therefore, to the extent that investors price a size-based risk factor in small utility stocks and beta does not reflect that risk factor, then a size-based risk premium would be appropriate. Nevertheless, as described above, the available evidence does not support the notion that utility stocks are exposed to size-based "risk."

In summary, although the relationship between firm size and return has been studied from various angles, no theoretical or empirical support has been found for the notion that investors require higher rates of return from relatively small utility stocks than they do from relatively large utility stocks.

Comparable Earnings Analysis

Q. Please comment on Mr. Mulle's comparable earnings analysis.

[47] Ibbotson Associates, *SBBI 1998 Yearbook*, pp. 129-145.
[48] CIWC Exhibit 4.0, Schedule 5, pp. 1 and 4.

A. The comparable earnings approach considered by Mr. Mulle in his determination of the cost of common equity for CIWC in this proceeding is badly flawed. As Mr. Mulle states, it is a non-market and a non-utility approach.[49] The cost of common equity is the market-required rate of return demanded by investors. The comparable earnings method incorrectly implies that the earned rate of return on book common equity is equivalent to the current investor-required rate of return. There is simply no basis for this implication since the accounting return measured by the comparable earnings method may be more or less than the return investors require to make an investment. In addition, the market price of a common stock will not reach equilibrium until the expected rate of return on the common stock equals the investor required rate of return. In contrast, the return on book value has no such adjustment mechanism since the denominator, book value, is immune to market forces.

The return estimated by the comparable earnings analysis can be significantly distorted by accounting practices. Accounting returns between two companies may not be directly comparable, which renders the comparable earnings model unreliable. The accounting return between a company which follows regulatory accounting rules may not be directly comparable to the return of an unregulated company. Differences in accounting practices have a significant impact on accounting rate of return. Since, Mr. Mulle's comparison group consists of five non-utility companies, the comparability of earnings to the water utility being considered is highly questionable. Therefore, the comparable earnings model is not a reliable method for estimating a fair rate of return for CIWC.

[49] CIWC Exhibit No. 4.0, Direct Testimony of Henry G. Mulle, p. 24.